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The Return on Investment in Liner Shipping

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The return on investment in liner shipping

A final report to the Canadian

Transport Commission

by

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on behalf of

Maritime Training and Research Consultants Ltd.,

Cardiff, Wales, UK.

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PREFACE

This report on the return on investment in liner shipping was prepared by an independent consultant under contract to the Canadian Transport Commission. It presents some interesting insights into the liner shipping industry, and is being released as a contribution to knowledge and discussion of the shipping industry.

Whenever possible, the Commission makes publicly available the results of its research and the present volume is offered in line with this policy. The opinions expressed in this report are, of course, those of the author and do not necessarily reflect the views of the Canadian Transport Commission.

G. Hamilton

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Executive Director
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March 1984

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I Introduction

There is a widely held view among those with knowledge of the shipping industry that investment in liner shipping generally yields low returns. This view is held both in government and academic circles and is apparently shared by most, if not all, shipowners, since few, if any, have taken any positive steps to discourage it.

Low returns on investment relative to returns in other industries are prima facie inconsistent with continued investment in an industry, yet investment in liner shipping has persisted. Evidence of this is the containerisation of many liner trades during the past fifteen years. Hence the relationship between investment in liner shipping and its return provides a most interesting topic for study. From where did the view that such investment yields low returns originate? Is the information on which it is based out-of-date? If so, to what extent does more recent evidence still support the view? How reliable are the sources of information? Given the correctness of the view, is there any conceptually sound explanation? To what extent will continued investment in liner shipping during prolonged periods of low profitability cause cash flow problems that will threaten the survival of the firm? These are the sort of questions that need to be asked if a satisfactory explanation of the conundrum is to be found.

In this paper we attempt to find answers to these questions. The data base for our empirical findings is, however, grossly inadequate. In gathering more recent evidence on the financial performance of liner shipping companies we merely scratched the surface. Indeed, there is scope for a major research programme in this area. So, whereas we would argue that the conclusions of a conceptual nature hold generally, the empirical findings may not do so, since they are based

largely on the experience of UK firms and in some instances on the experience of a single company.

There are six sections to the paper and three appendices. The following section reviews the evidence which has led to the belief that the return on investment in liner shipping is low. The next section tries to provide a general explanation of why investment in liner shipping should persist during long periods of low profitability. The fourth section investigates, with the aid of a financial model, whether such prolonged periods of low profitability are likely to cause cash flow problems for companies. The fifth section examines the profitability of the industry in the period since 1968, and in doing so makes an attempt to fill an obvious information gap. The sixth section lists the main conclusions of the study. Of the three appendices, only the first is substantive. It discusses why caution should be exercised in drawing firm conclusions about profitability from UK company accounting data. The second appendix comprises tables which are components of the financial model in Section IV. It was felt it would be inappropriate to include these in the body of the paper, as they are not essential to an understanding of the model. The final appendix states the terms of reference for the study.

II Evidence of Low Profitability

The view that investment in liner shipping yields a low return is widely held. It probably originates with the publication of the Report of the Committee of Inquiry into Shipping,* the so-called Rochdale Report in 1970 [11]. However, support for it is to be found in an earlier study submitted in 1964 to the Joint Economic Committee of the 88th U.S. Congress [13]. This study, prepared by Standard and Poor's Commission, provides a comparison of the profit rate in U.S. liner shipping with that in other U.S. industries for the years 1956 - 62 inclusive. The study shows that the return on total invested capital in the liner shipping industry over this seven year period averaged 7 per cent whereas that in all other industries average 10 per cent. Moreover, liner shipping profits were on a downward trend throughout the period. Further support for the view is provided by Deakin [3]. His data relate to the profitability of cargo liners operating in the Europe - Australia conference group and are, therefore, international in character. They cover largely the same period as the data in Rochdale, namely, the calendar years 1958 - 68. The Rochdale figures, however, relate to UK owned and registered ships only and cover about 75 per cent of the relevant UK tonnage.

The Rochdale Committee's findings on the average profitability of UK cargo liners over the period 1958-68 are reproduced in Table 1, both in their original and adjusted form. Deakin adjusted the figures so as to make them comparable with his own, which are also reproduced in the table together with The Economist's returns for 'all' companies.

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*According to Richard Goss there was evidence for this view before the publication of Rochdale, but it was fragmented and largely anecdotical.

Table 1 Percentage Pre-tax Return on Capital Employed

Year	Rochdale Committee[1] In UK owned and registered 'liners basically cargo' Original[3]	Rochdale Committee[1] In UK owned and registered 'liners basically cargo' Adjusted[4]	Deakin[2 4] In liners of several difference countries of registration, trading under the Europe-Australia conference group	The Economist[1 5] In 'all UK companies'
1958	5.8	5.5	4.2	18.1
1959	2.9	2.3	3.8	14.8
1960	4.2	3.5	5.7	15.0
1961	1.4	0.7	5.5	12.7
1962	0.8	0.1	6.3	11.5
1963	2.3	1.7	6.6	12.1
1964	4.0	3.3	5.1	13.0
1965	3.3	2.5	3.0	12.7
1966	1.8	1.0	5.9	11.8
1967	1.9	1.4	8.9	12.4
1968	5.2	5.4	8.6	12.9
Annual av. rates for the period 1958-68	3.1	2.5	5.8	13.4

Notes:

1. The Rochdale and The Economist figures are for the twelve months to 31st March in the year following the one shown.
2. Deakin's figures are for the calendar years shown.
3. The return in this column is profit, including other income (net), after depreciation but before interest and tax as a rate of return on capital employed, defined as ships at cost and valuation, less depreciation, plus expenditure on new ship construction, ancillary fixed assets and net working capital.
4. The return in these columns is profit, excluding other income (net), after depreciation but before interest and tax as a rate of return on capital employed, defined as ships at cost and valuation, less depreciation, plus expenditure on new ship construction.
5. The return in this column is profit as defined in (3) as a rate of return on capital employed defined conventionally.

Source: References [3] and [11].

It is reasonably safe to conclude, despite any reservations one might have about the dangers of drawing firm conclusions from accounting data (see Appendix A), that the period 1958-68 was one of modest, if not poor, profitability for liner shipping and, moreover, returns were low relative to profitability similarly measured in other industries. It may, however, be inferred from Sturmey that liner shipping has not always suffered from poor profitability [12]. Indeed, he suggests conditions were somewhat different for UK liner shipping between 1948 and 1958. There is a lack of published data on liner profitability in the years since Rochdale. This gap we attempt to fill in Section V of this paper.

III Investment and Low Profitability

In this section we provide an explanation of why investment in liner shipping tends to persist during prolonged periods of low profitability. It is hardly likely that such periods will be periods of expansion in the demand for liner services, so investment must be seen as a defensive reaction on the part of liner operators.

The provision of a scheduled service with sailings at regular intervals requires the setting up of a system. Such a system will consist of ships, terminals and other moveable and fixed equipment. The nature of the other equipment will depend upon the type of liner service that is to be provided; for example, whether it is to be break-bulk or containerised.

A liner operator need not necessarily own any components of the system as he may be able to charter suitable vessels, lease other equipment and make use of common user berths. But as ownership of vessels entails making a substantial commitment to a trade, it is often a condition that has to be fulfilled to attain conference membership, since it makes subsequent withdrawal from a trade an action that cannot be contemplated lightly. Hence the established operator, who will probably be a conference member, is likely to own rather than charter the vessels he employs in a trade, although financial leasing has recently become an acceptable alternative.

It is reasonable to assume that the established operator will wish to avoid heavily fluctuating demands on his cash flow, so, if at all feasible, he will evolve a replacement schedule for his equipment which, in maturity, will ensure that a similar proportion is renewed each year. Either explicitly or

implicitly, therefore, it is likely that each year he will have to make the following two stage investment decision. First, he will have to decide whether the time is still optimal for him to place orders to renew ships and other equipment that he has earmarked for replacement. Then, given that it is, he will have to decide whether it is worthwhile for him to go ahead and place the orders or alternatively to withdraw from the trade. At both stages of the investment decision, it will be essential for him to bear in mind his tax position. Notwithstanding, the most influential factor affecting the decision at the first stage is likely to be the long term effect that postponement will have on his market share in the trade, and at the second stage, it is likely to be the opportunity cost of the equipment he has not earmarked for renewal.

During a trade recession the alternative employment prospects for a fleet of cargo liners are likely to be few. Indeed, unless the operator is large and engaged in several trades they may be non-existent. Even when he is large and engaged in several trades, employment prospects for vessels withdrawn from a trade may depend upon the premature retirement of other older vessels in the operator's total fleet. Hence during a recession, the penalty for withdrawing from a trade where an operator is established and has retained the goodwill of shippers will undoubtedly be high. Consequently, given that the alternative of postponing the renewal of equipment earmarked for replacement has been rejected, the operator will probably decide to go ahead and place the orders, since the alternative of not doing so and withdrawing from the trade is likely to yield a lower and less certain return.

It is worth noting that there is at least one situation where an established operator may decide that withdrawal is perhaps the more profitable option for him; namely, where his current fleet has become obsolete, for example, as a

result of a decision by other break-bulk operators in a trade to containerise it. Moreover, he may be forced to withdraw as a consequence of a cash flow crisis which either forces him into receivership or he only survives by selling, as a going concern, his interest in the trade.

The essence of the explanation that we have given in this section as to why investment in liner shipping tends to persist during prolonged periods of low profitability is that the investment is essentially replacement in character and that liner shipping is an integrated business. In other words, ships in a liner shipping business are system components: they are not, therefore, independent profit centres as they are in a tramp shipping business. Consequently, the average return on assets employed in the business, as recorded in the company's accounts, cannot be taken to be an indication of the return that replacement investment will yield, as it might be in a tramp shipping business. Instead the benefit of such investment to the shipowner is the gross earnings he chooses not to forgo by remaining in the trade for another year. (See footnote page 21.)

IV Cash Flow Constraints on Investment

In the previous section we explained why liner operators are unlikely to wish to defer replacement investment in periods of low pre-tax profitability. But such investments can only be undertaken insofar as an operator is not suffering from any current cash flow constraints. In this section, therefore, we try to gain some insight into the effect that a prolonged period of low pre-tax profitability might have on the cash flow of such an operator.

In order to do this, we constructed a simple financial model consisting of a combined balance sheet and profit and loss account. The model was used to examine the cash flow situation of a hypothetical UK registered shipping company over the years 1950-81. However, its use is not limited to this specific example.

As a starting point for the exercise, the following initial assumptions were made.

At the beginning of 1950:

1. the historic value of the company's fixed assets was the same as their replacement value, and this was £10.5 million;
2. the company's fixed assets comprised 20 break-bulk cargo liners of different ages ranging from zero to nineteen years, which it employed in a single trade (the price of each ship before 1950 is thus taken to be £1 million);
3. for tax purposes the 20 ships were to be depreciated on a straight line basis over the remainder of their lives;

4. the tax allowances remaining on the 20 ships corresponded to their current replacement value; and
5. the company had no current assets.

These initial assumptions are obviously not entirely realistic, but they are unlikely to bias the results of the exercise significantly. Indeed, as the simulation moves away from its starting point, their effect will tend to become negligible.

It was further assumed that:

1. every year the company would earn a rate of the return of 5% after depreciation but before tax on its total net assets at the beginning of the year;
2. throughout the period the company would continue to operate conventional break-bulk cargo liners;
3. the economic life of the ships that the company owned in 1950 and any it purchased subsequently would be twenty years;
4. at the end of their economic lives such ships would have no scrap value;
5. all replacement vessels would be built in UK shipyards and their price would increase in line with the general rate of inflation;
6. payment for replacement vessels would be made on delivery and their contract price would correspond to the price at date of delivery;
7. from 1966 onwards the company would take advantage of the domestic credit arrangements which were available to it;
8. for accounting purposes the company would depreciate its fixed assets over their economic lives using the straight line method and basing the charge on historic cost;

9. the company would retain all its earnings; and

10. for tax purposes the company would use the straight line method of depreciation in preference to the reducing balance method where this choice was available.

Changes in the average annual rate of inflation over the period of the exercise are shown in Table 2, and changes in the price of replacement vessels are shown in Table 3. The latter figures were derived using the inflation rates in Table 2 and follow from the initial assumptions concerning the historic value of the fleet and its age structure.

Changes that occurred in the fiscal regime and in the credit arrangements available to shipowners over the period are shown in Table 4. The results of the simulation exercise are shown in Table 5. Supplementary information derived from these results is given in Tables 6, 7 and 8 respectively.

Table 2 Changes in the UK's Average Annual Rate of Inflation, 1950-81

Period	Average Annual Rate of Inflation
1950-53	9%
1954-68	3%
1969-71	6%
1972-74	9%
1975-79	14%
1980-81	9%

Source: References [10] and [7].

Table 3 Replacement Price of Vessels

(£'000)

Year Ending 31 December	Ship's Price	Year Ending 31 December	Ship's Price
1950	1090.0	1966	2073.0
1951	1188.1	1967	2135.2
1952	1295.0	1968	2199.2
1953	1411.6	1969	2331.2
1954	1454.0	1970	2471.0
1955	1497.6	1971	2619.3
1956	1542.5	1972	2855.0
1957	1588.8	1973	3112.0
1958	1636.4	1974	3392.0
1959	1685.5	1975	3867.0
1960	1736.0	1976	4408.5
1961	1788.1	1977	5025.4
1962	1841.7	1978	5729.0
1963	1897.0	1979	6531.2
1964	1953.9	1980	7118.9
1965	2012.6	1981	7759.6

Note:

The prices in this table are hypothetical.

Table 4 A Summary of the UK Fiscal Regime 1951-1981

Year	Company's Tax Rate[1]	Method of Deprec	% Rate of Deprec[2]	Investment Grant	Investment All.	Initial All.[3]	Credit Arrangements[4]
1950	55%	Red. Bal. Str. Line	12.50 5.00	-	-	40%	-
1951	57.5%	Red. Bal. Str. Line	12.50 5.00	-	-	40%	-
1952	50%	Red. Bal. Str. Line	12.50 5.00	-	-	-	-
1953	47.5%	Red. Bal. Str. Line	12.50 5.00	-	-	-	-
1954	47.5%	Red. Bal. Str. Line	12.50 5.00	-	20%	-	-
1955	45%	Red. Bal. Str. Line	12.50 5.00	-	20%	-	-
1956	45.5%	Red. Bal. Str. Line	12.50 5.00	-	20%	-	-
1957	45.5%	Red. Bal. Str. Line	12.50 5.00	-	40%	-	-
1958	52.5%	Red. Bal. Str. Line	12.50 5.00	-	40%	-	-
1959	48.75%	Red. Bal. Str. Line	12.50 5.00	-	40%	-	-
1960	51.25%	Red. Bal. Str. Line	12.50 5.00	-	40%	-	-
1961	53.75%	Red. Bal. Str. Line	12.50 5.00	-	40%	-	-
1962	53.75%	Red. Bal. Str. Line	12.50 5.00	-	40%	-	-
1963	53.75%	Red. Bal. Str. Line	16.00 6.25	-	40%	-	-
1964	53.75%	Red. Bal. Str. Line	16.00 6.25	-	40%	-	-
1965	40%	Free	Owner's Choice	-	40%	-	-

Table 4 A Summary of the UK Fiscal Regime 1951-1981 (Cont'd)

Year	Company's Tax Rate[1]	Method of Deprec	% Rate of Deprec[2]	Investment Grant	Investment All.	Initial All.[3]	Credit Arrangements[4]
1966	40%	Free	Owner's Choice	20%	-	-	80% over 8yrs @ 5½%
1967	42.5%	Free	Owner's Choice	25%	-	-	80% over 8yrs @ 5½%
1968	45%	Free	Owner's Choice	25%	-	-	80% over 8yrs @ 5½%
1969	42.5%	Free	Owner's Choice	20%	-	-	80% over 8yrs @ 6%
1970	40%	Free	Owner's Choice	-	-	-	80% over 8yrs @ 7½%
1971	40%	Free	Owner's Choice	-	-	-	80% over 8yrs @ 7½%
1972	40%	Free	Owner's Choice	-	-	-	80% over 8yrs @ 7½%
1973	52%	Free	Owner's Choice	-	-	-	70% over 7yrs @ 8%
1974	52%	Free	Owner's Choice	-	-	-	70% over 7yrs @ 8%
1975	52%	Free	Owner's Choice	-	-	-	70% over 7yrs @ 8%
1976	52%	Free	Owner's Choice	-	-	-	70% over 7yrs @ 8%
1977	52%	Free	Owner's Choice	-	-	-	70% over 7yrs @ 8%
1978	52%	Free	Owner's Choice	-	-	-	70% over 7yrs @ 8%
1979	52%	Free	Owner's Choice	-	-	-	80% over 8½yrs @ 8%
1980	52%	Free	Owner's Choice	-	-	-	80% over 8½yrs @ 8%
1981	52%	Free	Owner's Choice	-	-	-	80% over 8½yrs @ 8%

Notes for Table 4

1. Calculated as the overall tax on retained corporate earnings.

2. Under the system of free depreciation the shipowner is free to choose the rate at which the vessel is to be depreciated.

3. Since the introduction in 1965 of free depreciation for shipping the initial allowance is effectively 100% for companies not in a tax exhausted state.

4. Prior to 1966 shipping investment was generally not financed by loans. Since then loans have typically been for a certain percentage (80%) of the cost of the vessel over a given period of time (8 years) at a fixed rate of interest (7½%). In the UK domestic credit terms have corresponded to the ship export credit terms provided under the OECD understanding.

Sources: Various Finance Acts and references [7], [9] and [11].

Table 5 Combined Summary Balance Sheet and Profit and Loss Account of a Hypothetical UK Registered Liner Shipping Company, 1950-81

Year	NET ASSETS Fixed B/fwd £'000	End £'000	Current B/fwd £'000	End £'000	Total B/fwd £'000	End £'000	Net Earnings £'000	Book Deprec £'000	Gross Earnings £'000	Tax All Avail £'000	Taxable Earnings £'000	Tax Rate £'000	Tax £'000	Retained Earnings £'000
1950	10,500	10,590	0	386.05	10,500	10,976.05	525.0	1000	1525	1,436	89	0.550	48.95	476.05
1951	10,590	10,773.6	386.05	708.95	10.976.05	11,482.55	548.80	1004.5	1553.30	1,479.74	73.56	0.575	42.30	506.50
1952	10,773.6	11,054.7	708.95	714.91	11,482.55	11,769.61	574.13	1013.91	1588.04	1,013.91	574.13	0.500	287.07	287.06
1953	11,054.7	11,437.64	714.91	640.92	11.769.61	12,078.56	588.48	1028.66	1617.14	1,028.66	588.48	0.475	279.53	308.95
1954	11,437.64	11,842.40	640.92	691.35	12,078.56	12,533.75	603.93	1049.24	1653.17	1,340.04	313.13	0.475	148.74	455.19
1955	11,842.40	12,268.06	691.35	745.15	12,533.75	13,013.21	626.69	1071.94	1698.63	1,371.46	327.17	0.450	147.23	479.46
1956	12,268.06	12,713.74	745.15	794.45	13,013.21	13,508.19	650.66	1096.82	1747.48	1,405.32	342.16	0.455	155.68	494.98
1957	12,713.74	13,178.59	794.45	986.86	13,508.19	14,165.45	675.41	1123.95	1799.36	1,759.47	39.89	0.455	18.15	657.26
1958	13,178.59	13,661.60	986.86	1,183.92	14,165.45	14,845.52	708.27	1153.39	1861.66	1,807.95	53.71	0.5250	28.20	680.07
1959	13,661.60	14,161.89	1,183.92	1,392.72	14,845.52	15,554.61	742.28	1185.21	1927.49	1,859.41	68.08	0.4875	33.19	709.09
1960	14,161.89	14,678.40	1,392.72	1,611.23	15,554.61	16,289.63	777.73	1219.49	1997.22	1,913.89	83.33	0.5125	42.71	735.02
1961	14,678.40	15,210.21	1,611.23	1,840.56	16,289.63	17,050.77	814.48	1256.29	2070.77	1,971.53	99.24	0.5375	53.34	761.14
1962	15,210.21	15,756.21	1,840.56	2,084.83	17,050.77	17,841.04	852.54	1295.70	2148.24	2,032.38	115.86	0.5375	62.27	790.27
1963	15,756.21	16,315.42	2,084.83	2,316.75	17,841.04	18,632.17	892.05	1337.79	2229.84	2,042.09	187.75	0.5275	100.92	791.13
1964	16,315.42	16,886.68	2,316.75	2,547.97	18,632.17	19,434.65	931.61	1382.64	2314.25	2,074.00	240.25	0.5375	129.13	802.48
1965	16,886.68	17,468.94	2,547.97	2,937.44	19,434.65	20,406.38	971.73	1430.34	2402.07	4,182.20	0	0.4000	0	971.73
1966	17,468.94	18,060.97	2,937.44	5,438.73	20,406.38	23,499.70	1020.32	1480.97	2501.29	4,753.09	0	0.4000	0	3093.32
1967	18,060.97	18,661.55	5,438.73	7,959.44	23,499.70	26,620.99	1174.99	1534.62	2709.61	5,206.12	0	0.4250	0	3121.29
1968	18,661.55	19,269.37	7,959.44	10,403.04	26,620.99	29,672.41	1331.05	1591.38	2922.43	5,528.44	0	0.4500	0	3051.42
1969	19,269.37	19,949.23	10,403.04	12,658.69	29,672.41	32,607.92	1483.62	1651.34	3134.96	5,874.10	0	0.4250	0	2935.51
1970	19,949.23	20,702.33	12,658.69	14,327.20	32,607.92	35,029.53	1630.40	1717.90	3348.30	6,636.41	0	0.4000	0	2420.61
1971	20,702.33	21,534.68	14,327.20	15,814.68	35,029.53	37,349.36	1751.48	1786.95	3538.43	7,428.08	0	0.4000	0	2319.83
1972	21,534.68	22,531.17	15,814.68	17,096.16	37,349.36	39,627.33	1867.47	1858.51	3725.98	8,349.80	0	0.4000	0	2279.97
1973	22,531.17	23,706.66	17,096.16	17,842.89	39,627.33	41,549.55	1981.37	1936.51	3917.88	9,354.77	0	0.5200	0	1922.22
1974	23,706.66	25,077.13	17,842.89	18,316.32	41,549.55	43,393.45	2077.48	2021.53	4099.01	10,436.49	0	0.5200	0	1843.90
1975	25,077.13	26,825.70	18,316.32	18,652.14	43,393.45	45,477.84	2169.67	2118.43	4288.10	11,791.68	0	0.5200	0	2084.39
1976	26,825.70	28,997.10	18,652.14	18,812.77	45,477.84	47,809.87	2273.89	2236.90	4510.79	13,486.51	0	0.5200	0	2332.03
1977	28,997.10	31,642.31	18,812.77	18,754.82	47,809.87	50,397.13	2390.49	2380.19	4770.68	15,571.06	0	0.5200	0	2587.26
1978	31,642.31	34,819.29	18,754.82	18,434.51	50,397.13	53,253.80	2519.86	2552.02	5071.88	18,102.94	0	0.5200	0	2856.67
1979	34,819.29	38,593.84	18,434.51	18,452.35	53,253.80	57,046.19	2662.69	2756.65	5419.34	21,149.97	0	0.5200	0	3792.39
1980	38,593.84	42,713.81	18,452.35	18,266.50	57,046.19	60,980.31	2852.31	2998.93	5851.24	24,399.68	0	0.5200	0	3934.12
1981	42,713.81	47,205.33	18,266.50	18,166.13	60,980.31	65,371.46	3049.02	3268.08	6317.10	27,828.20	0	0.5200	0	4391.15

Note:

From 1966 the last column in the table (Retained Earnings) includes loan capital and investment received in the year. Investment grants were abolished in October 1970.

Source: The results in this table were derived from Tables 3 and 4, the assumptions in this section and the tables in Appendix A2.

Table 6 Return on Fixed Assets[1], 1950-81

Year	At Historic Cost		At Replacement Cost	
	Pre-tax	Post-tax	Pre-tax	Post-tax
1950	5.00	4.53	5.00	4.53
1951	5.17	4.78	4.05	3.68
1952	5.33	2.66	3.21	0.90
1953	5.32	2.79	2.37	0.31
1954	5.19	3.91	1.63	0.63
1955	5.29	4.05	1.60	0.64
1956	5.30	4.03	1.59	0.61
1957	5.31	5.17	1.59	1.47
1958	5.37	5.16	1.64	1.47
1959	5.43	5.19	1.69	1.50
1960	5.49	5.19	1.76	1.52
1961	5.55	5.19	1.84	1.54
1962	5.61	5.20	1.92	1.59
1963	5.66	5.02	2.01	1.49
1964	5.71	4.92	2.09	1.45
1965	5.75	5.75	2.18	2.18
1966	5.84	5.84	2.31	2.31
1967	6.51	6.51	2.92	2.92
1968	7.13	7.13	3.51	3.51
1969	7.70	7.70	4.05	4.05
1970	8.17	8.17	4.16	4.16
1971	8.46	8.46	4.11	4.11
1972	8.67	8.67	4.05	4.05
1973	8.79	8.79	3.55	3.55
1974	8.76	8.76	3.02	3.02
1975	8.65	8.65	2.51	2.51
1976	8.48	8.48	1.59	1.59
1977	8.24	8.24	0.78	0.78
1978	7.96	7.96	0.09	0.09
1979	7.65	7.65	-0.51	-0.51
1980	7.39	7.39	-0.99	-0.99
1981	7.14	7.14	-1.07	-1.07

Note

1. The rates of return shown are after charging depreciation on fixed assets using the straight line method. Even on a replacement cost basis such rates will overstate the real rates of return, although the discrepancy is unlikely to be large. The reason for this is that depreciation charged using the straight line method causes an understatement of the economic value of the assets employed in a business. Charging depreciation using the annuity method would lead to a correct value being placed on assets if charged on a replacement cost basis and, therefore, to accounting rates of return which were equivalent to the economist's measure of profit, that is, the internal rate of return. For further discussion of this point see references [1], [8] and [14].

Source: Table 5 and Table B5.

Table 7 Company's Annual Net Cash Flow, 1950-81

Year	Net Cash Flow in £'000	Year	Net Cash Flow in £'000
1950	386.05	1966	2501.29
1951	322.90	1967	2520.71
1952	5.96	1968	2443.60
1953	-73.99	1969	2255.65
1954	50.43	1970	1668.51
1955	53.80	1971	1487.48
1956	49.30	1972	1281.48
1957	192.41	1973	746.73
1958	197.06	1974	473.43
1959	208.80	1975	335.82
1960	218.51	1976	160.63
1961	229.33	1977	-57.95
1962	244.27	1978	-320.31
1963	231.92	1979	17.84
1964	231.22	1980	-185.85
1965	389.47	1981	-100.37

Source: Table 5.

Table 8 Company's Gearing Ratio[1], 1966-81

Year	Gearing Ratio as a Percentage Gross of Investment Grants	Net of Investment Grants
1966	7.07	7.20
1967	11.07	12.31
1968	15.16	15.96
1969	17.55	18.67
1970	19.48	20.64
1971	20.88	22.04
1972	21.96	23.10
1973	22.17	23.27
1974	22.14	23.19
1975	22.43	23.44
1976	23.01	24.00
1977	23.84	24.81
1978	24.88	25.83
1979	26.95	27.91
1980	28.89	29.85
1981	31.05	32.01

Notes:

1. Prior to 1966 no loan capital was employed, so the gearing ratio was zero. The Gearing Ratio may be defined as Debt/Capital Employed or as Debt/Total Net Assets.

Source: Table 5 and Table B4.

It is clear from the simulation exercise (see Table 5) that a company making no distributions to its shareholders and earning a rate of return after depreciation but before tax of 5 per cent on its total net assets at historic cost throughout the 32 year period would not have suffered from any cash flow constraints which would have prevented it from maintaining its fixed capital intact, provided it retained at least some of its current assets in a highly liquid form.* On the other hand, a company distributing all its surplus earnings each year and earning an equivalent amount gross in money terms would have experienced cash flow difficulties, but only in 1953 and from 1977 onwards with the exception of 1979. Note that the latter company would have earned after depreciation rates of return pre-tax on its total net assets equivalent to those which the former company would have earned on its net fixed assets (see Table 6), and its distributions to its shareholders gross would have been similar to the amounts shown in Table 7 as being either company's annual net cash flow.

The broad conclusion that may be drawn, therefore, is provided liner shipping companies pursue conservative distribution policies and cost inflation does not accelerate too rapidly, they may maintain their fixed capital intact while enduring prolonged periods of low rates of return after depreciation but before tax on their total net assets at historic cost. How low such rates of return can actually fall without causing cash flow difficulties is, of course, partly determined by the fiscal regime within which a particular company operates and by the credit facilities and financing arrangements available to it as well as by the two factors mentioned previously. In this context, it is worth mentioning that where a company is in a tax exhausted

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*The sensitivity of the results in Table 5 to the bunching of replacement orders was tested by the model. Such bunching could cause temporary cash flow difficulties of a minor nature but these could easily be alleviated by borrowing if the company was not too heavily geared.

state, such as the company in the simulation exercise was in after 1971, it may find leasing replacement assets, instead of either purchasing them out of retained earnings or by some form of credit arrangement, to be financially a more advantageous alternative to adopt, both from the standpoint of the effect on its profitability and on its cash flow.

Partly as a consequence of favourable shipbuilding credit terms, liner shipping companies registered in the UK tended after the mid-1960s to move towards loan financing as a means of providing funds for replacement investment. The simulation exercise illustrates the effect that this shift in financing arrangements would have had on a company's cash flow. It shows clearly that a move away from financing investment out of retained earnings would have provided UK liner shipping companies with substantial sums of extra cash which they could have used for expansionary purposes and, given a lack of investment opportunities in the industry, might have led to some diversification. Investment grants, too, by releasing funds previously earmarked for replacement investment would have provided extra cash which also could have been used for expansionary purposes. Again the simulation exercise illustrates the effect that such grants, which were generally available to UK companies from 1966 until October 1970, would have had on a company's cash flow.

Results from the simulation exercise may also be used to provide some quantitative support for the explanation we gave in the previous section as to why investment in liner shipping tends to persist even during prolonged periods of low profitability. Consider first the replacement investment decision facing the company at the end of 1980. In doing so, let us assume because of the economic climate, the company considers that its fleet of cargo liners is unlikely to find alternative employment, that is to say, it

has zero opportunity cost. Since the company is in a tax exhausted state, the only benefit of the investment to it is the expected earnings of the fleet in the following year if it does not withdraw the ships from the trade.

The cost of the investment is the present value of the loan plus the 20 per cent down payment it makes out of retained earnings. Assuming that the opportunity cost of capital to the company in real terms is 10 per cent, would the investment be worthwhile?

Calculation*

Purchase price of vessel £7,118,900
Down payment £1,423,780
Loan £5,695,120 over 8½ years at 8%
Expected gross earnings in 1981 £6,317,100
Estimated tax allowances available in 1981 if no further investments are made £20,068,600
Hence taxable earnings in 1981 are nil and post tax income is £6,317,100

Year	Net Cash Flow £'000	Discount Rate @ 20%	Discounted Cash Flow @ 20% £'000	Discount Rate @ 25%	Discounted Cash Flow @ 25% £'000
0	-1423.78	1.000000	-1423.78	1.000000	-1423.78
1	5204.88	0.833333	4337.40	0.800000	4163.90
2	-1058.62	0.694444	-735.15	0.640000	-677.52
3	-1005.02	0.578704	-581.61	0.512000	-514.57
4	-951.42	0.482253	-458.83	0.409600	-389.70
5	-897.82	0.401878	-360.81	0.327680	-294.20
6	-844.22	0.334898	-282.73	0.262144	-221.31
7	-790.62	0.279082	-220.65	0.209715	-165.80
8	-737.02	0.232568	-171.41	0.167772	-123.65
9	-348.41	0.193807	-67.52	0.134218	-46.76
			NPV = 34.91		NPV = 306.61

* Note that for the operator to continue in the trade after 1981 he will need to replace another vessel in his fleet. Hence earnings after 1981 will depend on that investment decision and not on the current one. Consequently, they are excluded from the calculation. On the other hand, costs associated with the investment decision continue throughout the period loan repayments are made and interest is paid.

The answer, in fact, depends on what the company expects to happen to the general rate of inflation in the future, since this will effect the real cost of the loan to it. If the average rate of inflation is expected to remain the same as it was in 1980, namely 9 per cent, this implies a money discount rate of about 20 per cent, so, as the calculation indicates, since such a discount rate will only just yield a positive net present value, a constant or accelerating rate of inflation will make the investment worthwhile whereas a decelerating rate will not.

The explanation of this perhaps seemingly paradoxical answer is that, because of accelerating inflation in the 1970s, by 1980 the gross earnings of the company in the simulation exercise had fallen considerably below the purchase price of a replacement vessel. In the real world a company could not afford to allow such a situation to persist for any length of time without taking corrective action, so it is likely that the rates of return on total net assets at historic cost would have risen in response to the accelerating rate of inflation. Consequently, it is improbable, regardless of the rate of inflation or the opportunity cost of capital, given a fleet has no alternative employment, that the net present value of an investment in a replacement vessel will be negative, unless the company has potentially a serious cash flow problem. It follows, therefore, that unless low profitability has reached a level where it is likely to cause cash flow difficulties for a company in the future, replacement investment will probably yield an acceptable return.

As the company was in a tax exhausted state in 1980, leasing the replacement vessel might have proved to be a better option than purchasing it. A comparison of the cost of the two alternatives would have resolved this issue.

Let us consider now the investment decision facing the company in 1964 under the same assumptions as above. Since the company is not in a tax exhausted state, the benefit to it of purchasing a replacement vessel would be the immediate tax savings that such an investment would yield as well as the post-tax earnings of the fleet in the following year if it did not withdraw the ships from the trade. The cost would be equivalent to the purchase price of the vessel as the investment is to be financed out of retained earnings. Would such an investment be worthwhile? Unless the general rate of inflation is expected to increase markedly from 3 per cent within the year, the answer is undoubtedly yes as the calculation below shows.

Calculation

Purchase price of vessel £1,953,900
Investment allowance £781,560
Tax rate 53.75%
Tax saving £420,090
Hence net vessel cost £1,533,810

1965

Expected pre-tax earnings £2,402,070
Estimated tax allowances available if no further investments are made £1,364,560
Hence taxable earnings £1,037,510
Expected tax rate 53.75%
So estimated tax £557,660 and estimated post-tax income £1,844,410

Year	Net Cash Flow £'000	Discount Rate @ 13.3%	Discounted Net Cash Flow £'000
0	-1533.81	1.000000	-1533.81
1	1844.41	0.882613	1627.90
			NPV = 94.09

Note

Throughout this section, we have implicitly assumed that there are no payment lags in the fiscal regime. This is obviously incorrect, but it is unlikely to affect any observations we have made or any conclusions we have drawn.

V Profitability Post-Rochdale*

Our objective in this section is to try to throw some light on the profitability of liner shipping since Rochdale. Table 9 shows the rates of return achieved on capital employed by four major UK shipping groups over the period 1968-81, as recorded in their published accounts. The companies, with the exception of Furness Withy, are all currently publicly quoted companies on the London Stock Exchange. Furness Withy became a wholly owned subsidiary of Orient Overseas Container (Holdings) Limited, Hong Kong in May 1980.

The four companies named in Table 9, both directly and through their subsidiaries, have always been closely identified with the provision of liner shipping services. During the post-war era such well-known lines as the British India Steam Navigation Company, the New Zealand Shipping Company, the Union Steam Ship Company of New Zealand, Strick Line, Clan Line, the Union-Castle Mail Steamship Company, Blue Funnel Line, Glen Line, Elder Dempster Lines, Shaw Savill Line, Royal Mail Lines, and the Pacific Steam Navigation Company have belonged to these groups. And between them, the four companies and their subsidiaries have provided liner services from Europe to most parts of the world. They have also provided liner services in cross-trades.

The 1970s was a decade of change for the four companies as, indeed, it was for other major shipping groups. Many of the conventional break-bulk liner services provided by the lines named above and other subsidiary and associated companies were withdrawn. Moreover, the four companies diversified their activities, so that by 1980 only 26 per cent of Ocean's turnover, 13 per cent of British and Commonwealth's, 14 per cent of P&O's (excluding ferries services), and 73 per cent

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* Unless otherwise stated the information in this section comes from the audited company accounts of the named companies.

of Furness Withy's came directly from shipping, and not all from the provision of liner shipping services. For example, the contribution of P&O's deep sea cargo liner services to its gross revenue in 1980 was about 6 per cent, although the total contribution of cargo liners to the Group's profit was approximately 22 per cent, largely as a consequence of the Company's major interest in Overseas Containers Limited (OCL). It is obvious, therefore, that no conclusion as to the profitability of liner shipping in the post-Rochdale era can be drawn from the rates of return shown in Table 9.

Although the four companies reduced their direct involvement in liner shipping in the 1970s, their indirect involvement increased through their common interest in OCL which they jointly formed in 1965. After a reconstruction of its share capital in 1972 and the writing off of accumulated trading losses amounting to £8 million, OCL began to trade profitably. In March 1969, it entered the trade between Europe and Australia, and so began a process by which many of the conventional services of the four companies were over the following decade withdrawn and replaced by container services provided by OCL. By November 1979, OCL had, either directly or through its subsidiaries or associated companies, an interest in the following liner trades: Europe-Australia/New Zealand, Europe-Far East, Europe-Southern Africa, Europe-Gulf, Europe-East Africa, Far East-Gulf, Australia-Japan, Australia-Hong Kong/Taiwan/Philippines, New Zealand-Japan, Australia-Singapore/Malaysia/Thailand/Indonesia, Japan-Singapore/Malaysia/Taiwan, Europe-Indian Sub-Continent and Australian/New Zealand-Gulf.

Investment in containerisation took place because the joint-owners of OCL expected such investment was more likely to yield a satisfactory return than continued investment in conventional liner services, since they attributed their low returns for the provision of conventional services to escalating port costs caused by poor cargo handling rates for break-bulk cargoes. Moreover, the situation was seen as being aggravated by bad industrial relations in many ports which led to numerous strikes and other forms of industrial action. Containerisation it was hoped would reduce the opportunities for such action.

Table 9 A Summary of the Financial Performance of Four Major UK Shipping Groups, 1968-81, based on Historic Cost Accounting Data

	Company: Ocean Transport & Trading Ltd	YEAR ENDING													
		31/12/68	31/12/69	31/12/70	31/12/71	31/12/72	31/12/73	31/12/74	31/12/75	31/12/76	31/12/77	31/12/78	31/12/79	31/12/80	31/12/81
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
A	Turnover	64.85	66.29	71.34	82.86	136.94	192.54	285.40	311.51	382.73	459.03	485.07	534.20	594.50	672.70
B	Pre-tax Profits before Interest[1]	8.12	10.43	7.11	7.98	13.09	28.03	40.00	35.04	55.09	53.04	26.90	41.03	62.70	57.50
C	Interest Payable	0.02	0.30	0.41	0.75	2.65	8.95	11.42	12.46	13.89	14.22	16.76	21.30	27.20	24.10
D	Reported Pre-tax Profits	8.10	10.13	6.70	7.23	10.44	19.08	28.58	22.58	42.20	38.82	10.14	19.73	35.50	33.40
E	Debt Finance	4.75	7.44	15.62	37.55	74.03	86.09	84.25	97.75	139.66	174.90	167.76	207.20	197.80	175.10
F	Capital Employed[2]	128.80	131.98	142.27	171.51	229.14	269.65	279.25	305.73	406.59	457.04	439.70	483.50	513.60	591.50
B÷F	R.O.C.E. (as a percentage)	6.56	7.90	5.00	4.65	5.71	10.39	14.32	11.46	13.55	11.61	6.12	8.49	12.21	9.72
E÷F	Gearing Ratio (as a percentage)	3.84	5.64	10.98	21.89	32.31	31.92	30.17	31.97	34.35	38.27	38.15	42.85	38.51	29.60

	Company: British & Commonwealth Shipping Company PLC	YEAR ENDING													
		31/12/68	31/12/69	31/12/70	31/12/71	31/12/72	31/12/73	31/12/74	31/12/75	31/12/76	31/12/77	31/12/78	31/12/79	31/12/80	31/12/81
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
A	Turnover	56.25	77.40	70.10	74.10	98.90	116.90	147.90	181.50	218.10	238.10	256.10	292.00	334.80	345.40
B	Pre-tax Profits before Interest[1]	9.38	10.95	8.65	8.94	11.13	17.48	24.48	22.06	31.30	36.15	34.87	39.00	36.76	41.32
C	Interest Payable	1.01	2.54	3.08	2.67	3.12	4.11	5.28	5.66	6.12	6.84	8.28	10.36	12.57	13.01
D	Reported Pre-tax Profits	8.37	8.41	5.57	6.27	8.01	13.37	19.20	16.40	25.18	29.31	26.59	28.64	24.19	28.31
E	Debt Finance	27.33	36.52	31.85	38.44	40.20	42.22	44.67	46.57	52.53	59.08	66.97	76.69	64.64	76.74
F	Capital Employed[2]	126.98	139.40	135.19	151.12	162.91	171.26	175.06	184.99	204.64	232.56	256.99	291.18	296.65	332.21
B÷F	R.O.C.E. (as a percentage)	7.39	7.86	6.40	5.92	6.83	10.20	13.98	11.93	15.30	15.55	13.57	13.40	12.39	12.44
E÷F	Gearing Ratio (as a percentage)	21.52	26.20	23.56	25.44	24.68	24.65	25.52	25.17	25.67	25.40	26.06	26.34	21.79	23.10

	Company: Peninsular & Oriental Steam Navigation Company	YEAR ENDING													
		30/9/68	30/9/69	30/9/70	30/9/71	30/9/72	30/9/73	30/9/74	31/12/75	31/12/76	31/12/77	31/12/78	31/12/79	31/12/80	31/12/81
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
A	Turnover	172.36	184.89	191.36	231.67	216.27	244.93	456.17	794.08	740.45	980.44	1,133.13	1,377.63	2,240.27	3,072.72
B	Pre-tax Profits before Interest[1]	11.13	14.83	16.15	10.10	18.04	43.94	72.29	56.84	62.52	73.21	55.41	82.76	86.47	80.13
C	Interest Payable	1.84	2.18	3.56	5.17	5.72	9.78	19.76	34.12	31.40	30.75	36.92	44.04	39.39	39.18
D	Reported Pre-tax Profits	9.49	12.65	12.59	4.93	12.32	34.16	52.53	22.72	31.12	42.46	18.49	38.72	47.08	40.95
E	Debt Finance	34.28	48.63	69.37	87.22	113.70	182.84	205.21	267.97	266.44	299.33	298.65	286.46	899.95	183.82
F	Capital Employed[2]	263.18	270.39	301.68	326.40	334.28	541.61	636.74	693.37	710.14	715.34	734.96	732.87	691.86	681.00
B÷F	R.O.C.E. (as a percentage)	4.40	5.48	5.35	3.09	5.40	8.11	11.37	8.20	8.80	10.23	7.54	11.29	12.50	11.76
E÷F	Gearing Ratio (as a percentage)	13.54	16.88	22.99	26.72	34.01	33.71	32.28	38.65	37.52	36.25	40.63	34.99	30.36	26.85

	Company: Furness Withy & Company Ltd	YEAR ENDING													
		31/12/68	31/12/69	31/12/70	31/12/71	31/12/72	31/12/73	31/12/74	31/12/75	31/12/76	31/12/77	31/12/78	31/12/79	31/12/80	31/12/81
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
A	Turnover	83.50	89.50	103.50	93.50	97.50	115.80	142.60	147.60	168.40	184.60	178.80	196.30	235.00	259.06
B	Pre-tax Profits before Interest[1]	3.93	7.15	5.37	0.97	8.23	17.40	28.82	19.65	29.11	27.51	20.48	18.90	26.91	23.18
C	Interest Payable	0.33	0.68	1.62	2.05	2.42	3.54	4.10	5.51	6.47	6.79	8.27	10.37	13.78	11.77
D	Reported Pre-tax Profits	3.60	6.47	3.75	(1.08)	5.81	13.86	24.72	14.14	22.64	20.72	12.21	8.53	13.13	11.41
E	Debt Finance	10.45	12.81	25.67	28.21	39.93	48.52	59.39	66.45	71.52	83.27	97.34	105.06	106.01	96.66
F	Capital Employed[2]	86.84	94.18	115.85	108.27	127.12	142.03	154.32	163.63	177.41	200.01	230.25	240.13	218.08	212.32
B÷F	R.O.C.E. (as a percentage)	4.52	7.59	4.63	0.90	6.47	12.25	18.68	12.01	16.41	13.75	8.90	7.87	12.34	10.92
E÷F	Gearing Ratio (as a percentage)	12.04	13.60	22.16	26.06	31.41	34.16	38.48	40.61	40.31	41.63	42.27	43.75	48.61	45.53

Notes

1. Includes investment income and share of the profits or losses of associated companies.
2. Overdrafts not included; investment grants included.

Source: Audited Company Accounts.

Table 10 A Summary of the Financial Progress of Overseas Containers Limited since 1972 based on Historic Cost Accounting Data

		Year Ending											
		30/9/72	30/9/73	30/11/74	30/11/75	30/11/76	30/11/77	30/11/78	30/11/79	30/11/80	Restated 30/11/80	30/11/81	30/11/82
		£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£'000	£m
A	Turnover	46,925	96,006	138,299	187,252	229,676	289,000	345,780	360,304	361,368	359,730	415,681	502.1
B	Pre-tax Profit before Interest	4,164	22,556	29,939	26,727	48,932	56,102	47,703	50,930	56,188	55,706	35,657	43.4
C	- Interest Payable	3,112	5,161	6,256	6,445	6,386	7,358	11,032	12,826	12,732	9,863	9,555	16.2
D	= Reported Pre-tax Profit	1,052	16,395	23,683	20,282	42,546	48,744	36,671	38,104	43,456	45,843	26,102	27.2
	- Actual Tax	15	1,937	297	1,293	7,369	(1,447)	1,776	5,172	2,034	2,034	3,324	5.4
E	- Deferred Tax	-	5,015	13,097	9,880	15,034	27,577	3,454	3,128	1,815	1,485	(4,624)	1.7
F	= Reported Profit after Tax	1,037	9,443	10,289	9,109	20,143	22,614	31,441	29,804	39,607	42,324	27,402	20.1
G	- Minority Interests	172	732	359	173	1,321	1,884	1,897	1,785	656	791	2,106	(0.4)
H	+ Extraordinary Items	-	-	-	-	-	-	(11,776)	-	-	-	(3,412)	(0.5)
I	= Profit attributable to Shareholders	865	8,711	9,930	8,936	18,822	20,730	17,768	28,019	38,951	41,533	21,884	20.4
J	Shareholders Funds	28,561	29,272	39,202	40,168	48,864	65,823	137,758	151,767	157,243	148,620	180,562	183.3
K	+ Minority Interests	1,187	2,449	2,710	2,907	4,264	4,340	8,738	10,444	9,664	9,809	10,587	7.9
L	+ Loans	84,294	87,445	64,448	60,417	72,761	109,482	103,037	86,681	77,799	76,735	117,733	101.1
M	+ Lease Finance	-	-	-	-	-	-	-	-	-	51,675	85,418	93.4
N	+ Deferred Taxation	-	5,038	18,466	28,521	43,838	70,939	3,450	6,846	8,164	7,876	4,124	5.8
O	+ Investment Grants	2,658	2,370	2,422	2,105	1,970	1,742	1,548	1,608	1,397	1,397	1,188	1.0
P	= Capital Employed	108,700	126,574	127,248	134,118	171,697	252,326	254,531	257,346	254,267	296,112	399,612	392.5
B÷P	R.O.C.E. (as a %)	3.93	17.82	23.53	19.53	28.50	22.23	18.74	19.79	22.10	18.81	8.92	11.06
(L+M)÷P	Gearing Ratio (as a %)	77.55	69.09	50.65	45.05	42.38	43.39	40.48	33.68	30.60	43.37	50.84	49.55
Depreciation (£'000)	on owned assets	1,779	2,092	2,915	5,381	4,779	8,006	17,982	18,636	21,439	20,805	23,806	28,143
	on leased assets	-	-	-	-	-	-	-	-	-	6,133	5,306	8,021
	on total assets	1,779	2,092	2,915	5,381	4,779	8,006	17,982	18,636	21,439	26,938	29,112	36,164

Note: In 1981 the company changed its treatment of leased assets. It adopted Exposure Draft 29, thereby including leased assets and leasing obligations in its balance sheets and charging depreciation on such assets in its Profit and Loss Account; hence the re-statement of its performance in 1980.

Source: Audited Company Accounts of OCL.

Table 11 A comparison of the Return on Capital achieved by OCL and its Founder Companies with the Average Return achieved by UK Industrial and Commercial Companies over the Period 1972-81. (Per Cent)

Year	Pre-tax Historic Cost Rate of Return on Capital of OCL and its Founders[2]					Pre-tax Historic Cost Rate of Return on Capital of Industrial and Commercial Companies[1]		
	Ocean	British & Commonwealth	P&O	Furness Withy	OCL	Based on Company Accounts[2 3]	Based on National Accounts[4]	
							Gross of Stock Appreciation	Net of Stock Appreciation
1972	5.7	6.8	5.4	6.5	3.8	16.0	16.8	14.5
1973	10.4	10.2	8.1	12.3	17.8	18.1	19.7	15.2
1974	14.3	14.0	11.4	18.7	23.5	16.8	20.0	12.0
1975	11.5	11.9	8.2	12.0	19.5	15.4	18.4	12.1
1976	13.6	15.3	8.8	16.4	28.5	18.6	20.4	13.5
1977	11.6	15.6	10.2	13.8	22.2	17.7	21.1	16.7
1978	6.1	13.6	7.5	8.9	18.7	-	21.2	17.6
1979	8.5	13.4	11.3	7.9	19.8	17.4	20.4	14.2
1980	12.2	12.4	12.5	12.3	18.8	15.4	15.6	11.7
1981	9.7	12.4	11.8	10.9	8.9	15.0	13.2	10.2
Average	10.4	12.6	9.5	12.0	17.3	16.9[5]	18.6	13.8

Notes:

1. The figures exclude the North Sea activities of the companies. Capital is defined as total net trading assets.
2. The figures are gross of stock appreciation. Note to the extent that assets have been revalued in company accounts, recorded rates of return will be less than their true historic cost counterparts as a consequence of higher depreciation charges and larger valuations of total capital; this explains why the returns based on national accounting data tend to be higher.
3. The figures for 1972 to 1977 were estimates derived from the published accounts of over 1000 large listed companies in manufacturing, distribution and services, as recorded in the Department of Industry's Business Monitor MA3: Company Finance (see Bank of England Quarterly Bulletin (BEQB), December 1979). The figures for 1979 to 1981 were obtained from a Bank of England analysis of 250 major UK companies as recorded in the BEQB, September 1982 (see also "Issues in Bank Taxation", Institute for Fiscal Studies, 1983). There is no strictly comparable figure for 1978, although Phillips and Drew (stockbrokers) produced an estimate of an average return of 18.2% for UK industrial companies (see The Times, 27 July, 1983).
4. See BEQB, June 1982.
5. Assumes a rate of return of 18.2 per cent in 1978.

Sources: Tables 9 and 10, Bank of England Quarterly Bulletin, The Times.

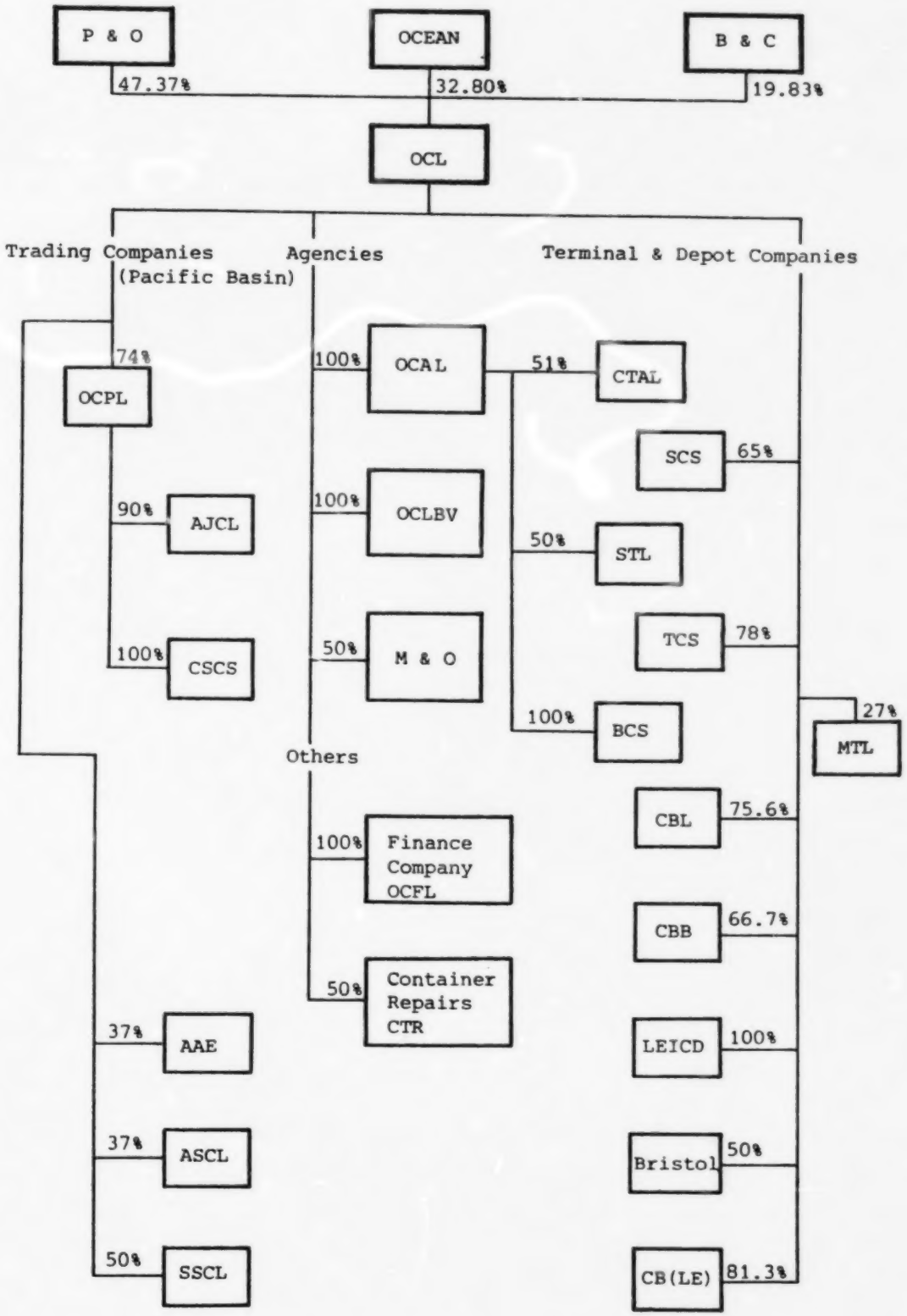

Table 12 OCL SIMPLIFIED GROUP STRUCTURE

Source: OCL Annual Report 1982

List of Abbreviations			Country of Registration
Trading Companies			
OCPL	-	Overseas Containers (Pacific) Ltd.	U.K.
AJCL	-	The Australia Japan Container Line Ltd.	U.K.
CSCS	-	Crusader Swire Container Service Ltd.	U.K.
AAE	-	Asia Australia Express Ltd.	Hong Kong
ASCL	-	Australia Straits Container Line (Pte) Ltd.	Singapore
SSCL	-	Swire Straits Container Line	U.K.
Terminal Companies			
CTAL	-	Container Terminals Australia Ltd.	Australia
MTL	-	Modern Terminals Ltd.	Hong Kong
SCS	-	Solent Container Services Ltd.	U.K.
STL	-	Seatainer Terminals Ltd.	Australia
TCS	-	Tilbury Container Services Ltd.	U.K.
Depot Companies			
BCS	-	Bay Container Services Pty Ltd.	Australia
Bristol	-	Bristol I.C.D.Ltd.	U.K.
CBL	-	Containerbase Ltd.	U.K.
CBB	-	Containerbase (Barking) Ltd.	U.K.
CB(LE)	-	Containerbase (London East) Ltd.	U.K.
LEICD	-	London (East) I.C.D. Ltd.	U.K.
Agencies			
OCAL	-	Overseas Containers (Australia) Pty Ltd	Australia
OCLBV	-	OCL Agencies B.V.	Holland
M & O	-	M & O Container Transport GmbH	West Germany
Others			
OCFL	-	Overseas Containers (Finance) Ltd	U.K.
CTR	-	CTR (Container and Transport Repairs) Ltd.	U.K.

Table 13

OCL CONSORTIA MEMBERSHIP 1982

EUROPEAN TRADES	No. of ships in 1982
EUROPE-AUSTRALIA/NEW ZEALAND	
ANZECS Overseas Containers Compagnie Generale Maritime Hapag Lloyd Lloyd Triestino Nedlloyd Shipping Corporation of New Zealand	13
EUROPE-FAR EAST	
TRIO Overseas Containers Ben Line Containers Hapag Lloyd Mitsui OSK Lines Nippon Yusen Kaisha	20
EUROPE-SOUTHERN AFRICA	
SAECS Overseas Containers Chargeurs Reunis Compagnie Maritime Belge Compagnie Generale Maritime Deutsche Afrika-Linien Ellerman Harrison Container Line Lloyd Triestino Nedlloyd Safmarine	9* Cellular 2 RoRo 3 (Med Service)
* Two ships out on temporary charter until 1984.	
EUROPE-EAST AFRICA	
BEACON Overseas Containers Ellerman City Liners Harrisons	4 (charter vessels)
EUROPE-GULF	
Overseas Containers Compagnie Maritime Belge Ellerman City Liners Hapag Lloyd Nedlloyd United Arab Shipping Company	9
EUROPE-INDIAN SUBCONTINENT	
Overseas Containers Compagnie Maritime Belge Ellerman City Liners Hapag Lloyd Nedlloyd	3 (charter vessels) 1 Feeder (charter vessel)

PACIFIC TRADES	No. of ships
AUSTRALIA-JAPAN	
The Australia Japan Container Line Mitsui OSK Lines Nippon Yusen Kaisha Yamashita-Shinnihon Steamship	5
NEW ZEALAND-JAPAN	
Crusader Swire Container Service Japan Line Mitsu OSK Lines Shipping Corporation of New Zealand	2
AUSTRALIA-HONG KONG/TAIWAN/PHILIPPINES	
Asia Australia Express Orient Overseas Container Line The Australian National Line	6
AUSTRALIA-SINGAPORE/MALAYSIA/THAILAND/INDONESIA	
Australia Straits Container Line Nedlloyd (Singapore) Neptune Orient Lines The Australian National Line	3
JAPAN-SINGAPORE/MALAYSIA/TAIWAN	
Swire Straits Container Line Ben Line Steamers Pan Asia Line SK Line Toyo Line	4

OTHER CROSS TRADES	
AUSTRALIA/NEW ZEALAND-GULF	
Overseas Containers Blue Star Line	3
FAR EAST-GULF	
GREATER OASIS Overseas Containers K Line Mitsui OSK Lines Nippon Yusen Kaisha Showa Line YS Line	5

SOURCE: OCL Summary Accounts 1982

The operations of OCL are almost entirely concerned with the provision of liner services or related activities (see Table 12). So it may be argued that its profitability should provide a reasonable indication of the average profitability of liner services during the post-Rochdale era, particularly in respect of containerised services operating within the 'closed' conference system. Table 10 provides a summary of the financial progress of OCL since 1972. Since its take-over by Orient Overseas Container (Holdings) Limited, Furness Withy has not had an interest in OCL. The current interest of the other three companies in OCL is P&O 47.37 per cent, Ocean 32.80 per cent and British and Commonwealth 19.83 per cent.

In so far as it is valid to make comparisons between firms involved in different industrial activities and bearing in mind definitions of capital may differ (see Notes to Tables 9, 10 and 11), the broad conclusion that may be drawn from Table 11 is that, in general, OCL out performed its founder companies over the ten years 1972 to 1981. Moreover, its performance in most years was better than the average for UK industrial and commercial companies. In this context, it should be noted that stock appreciation is unlikely to have a significant effect on the profits of a non-manufacturing business such as OCL.

So to the extent that OCL is representative of other liner shipping businesses, we may conclude, at least tentatively, that despite accelerating cost inflation in the 1970s, the post-Rochdale era has been generally a period of improved profitability for liner shipping, and that returns have been satisfactory in comparison to other industries. Indeed, the comparisons in Table 11 suggest that many of the activities into which liner companies diversified in the 1960s and 1970s have yielded disappointing returns and that these and not their traditional business have been partly responsible for the continuing belief that liner shipping is a low profit industry. The activities into which liner shipping companies diversified in the 1960s and 1970s included, of course, other types of shipping.

VI Main Conclusions

1. The belief that investment in liner shipping often yields low returns probably originates with the publication of the Rochdale Report in 1970.

2. The period 1958-68 was one of modest, if not poor, profitability for liner shipping and, moreover, returns were low relative to profitability in other industries.

3. A general explanation for continued investment in liner shipping during prolonged periods of low profitability is that such investment is largely of a replacement character and as such will probably yield an acceptable rate of return even when the average return on assets employed in the business is poor.

4. Prolonged periods of low profitability, defined in terms of returns after depreciation but before tax and interest on total net assets at historic cost, may be endured by liner shipping companies without running into cash flow difficulties if they pursue conservative distribution policies and inflation does not accelerate too rapidly.

5. During the late 1960s and throughout the 1970s liner shipping underwent a technological revolution and as a consequence most important liner trades have been containerised. Investment in containerisation has taken place because shipowners expected such investment would yield a satisfactory return, since they attributed their low returns in the 1960s and late 1950s to escalating port costs caused by poor cargo handling rates for break bulk cargoes. The situation, moreover, was seen as being aggravated by bad industrial relations in many ports which led to numerous strikes and other forms of industrial action; containerisation it was hoped would reduce the opportunities for such action. Hence there is a particular explanation for continued investment in liner shipping in the post-Rochdale era which is peculiar to this period and other periods of rapid technological change, namely, that the introduction of new technology will prove cost-effective and consequently result in improved profitability. To the extent that OCL's experience is typical of other liner shipping companies, we may conclude that the expectations of shipowners in respect of their investments in containerisation have been realised. Even where this has not been so, it does not detract from the explanation, as it is the expectations associated

with an investment decision, and not the eventual outcome of the decision if the investment is undertaken, which determines whether the investment is made or not.

6. Containerisation of a trade requires substantial capital investment in ships, their containers and the necessary land installations and equipment. Such investment effectively brings forward the cost of replacing conventional break-bulk vessels with similar tonnage, but the eventual replacement cost is not necessarily any greater than it would have been, since the change in technology means fewer ships. Investment in containerisation (at least by UK registered companies) has been financed largely by borrowing, partly as a consequence of the favourable shipping building credit terms that have become generally available since the mid-1960s and partly because before containerisation such companies were very much under geared. Hence the container revolution released substantial sums of cash, which were retained previously for re-investment in conventional tonnage, and such cash has been used partly for diversification into activities outside the shipping industry. Expansion into such non-shipping activities, moreover, may be seen as a necessary consequence of the borrowing that has taken place to finance the cost of containerisation as the period for repayment of shipbuilding loans is always considerably shorter than the life of the assets purchased. So such diversification is necessary to offset any eventual adverse short-term effects that borrowing to finance the initial cost of containerisation might have on the cash flows on the companies involved.

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APPENDIX A

In Section II some doubt was cast on the reliability of accounting data as an indicator of true profitability. Financial accounts are, of course, misleading in the sense that in compiling them accountants attribute to a year's activities not only the receipts and outgoings of that particular year but also future receipts and outgoings which will result from these activities. However, this was not the problem to which we were alluding, since it resolves itself if information is collected over a long enough period, as it is in the nature of double-entry book keeping that distortions in one year will be offset in due course by distortions in the opposite direction [8]. Nor were we hinting at the way in which profitability as measured by historic accounts is overstated as a consequence of inflation; nor the fact that certain UK shipping companies have in the past not disclosed their true profits (or losses) because they have been exempted from doing so under UK company legislation [11]. Our reservations stem from the fact that the accounts of a wholly owned subsidiary company may be misleading because under UK company legislation such companies are not required to produce consolidated accounts if they have subsidaries of their own [2]. This provides scope for such a company to disguise its true profitability through transfer pricing. Where this occurs, moreover, it may be difficult to uncover without extensive research into the accounts of the group as a whole, particularly if the ultimate holding company has a number of subsidiary companies engaged in similar activities or is not very informative in its published accounts.

We perhaps stumbled upon an occurrence of transfer pricing in investigating the accounts of the Federal Steam Navigation Company (FSNCo). Table A1 summarises the financial results of this company over the period 1961-70. As the table reveals, after a somewhat indifferent performance throughout the 1960s, this

Table A1 A Summary of the Financial Performance of the Federal Steam Navigation Company Limited, 1961-70.

		Year Ending									
		30/9/61	30/9/62	30/9/63	30/9/64	30/9/65	30/9/66	30/9/67	30/9/68	30/9/69	30/9/70
		£	£	£	£	£	£	£	£	£	£
A	Turnover[1]							3,467,962	2,034,067	1,312,054	1,580,823
B	Trading Profit[2]	344,313	(365,382)	224,595	380,258	388,114	(53,452)	44,174	162,325	135,122	185,146
C	+ Investment Income	228,513	754,829	209,778	108,549	263,587	121,785	78,115	88,341	70,627	9,992,293
D	= Pre-tax Profit before Int.	582,826	389,447	434,373	488,807	651,701	68,333	122,289	250,666	205,749	10,177,439
E	- Interest Payable	-	-	-	-	-	-	-	10,912	116,603	101,302
F	= Reported Pre-tax Profit	582,826	389,447	434,373	488,807	651,701	68,333	122,289	239,754	89,146	10,076,137
G	- Actual Tax	112,002	1,045	13,259	36,715	108,337	24,193	1,471	485	485	437,079
H	- Deferred Tax	222,342	-	-	-	-	-	-	-	-	-
I	= Reported Profit after Tax	248,482	388,482	421,114	452,092	543,364	44,140	120,818	239,369	88,661	9,639,058
J	Shareholders Funds	9,742,837	10,174,147	12,763,600	13,391,323	12,883,699	12,899,426	13,678,341	13,860,170	13,184,652	11,496,177
K	+ Deferred Tax	3,048,247	3,048,247	845	-	-	-	-	-	-	-
L	+ Shipbuilding Loans	-	-	-	-	-	-	-	1,991,667	1,742,709	1,493,750
M	= Capital Employed[2]	12,791,084	13,222,394	12,764,445	13,391,323	12,883,699	12,899,426	13,678,341	15,851,837	14,927,361	12,989,927
D÷M	R.O.C.E. (as a %)	4.56	2.95	3.40	3.65	5.06	0.53	0.89	1.58	1.38	78.35
L÷M	Gearing Ratio (as a %)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	12.56	11.67	11.50

Notes:

1. Figures on turnover not available before 1967.
2. Investment grants netted out of the 1968, 1969 and 1970 figures.

Source: Company accounts of the Federal Steam Navigation Company.

company experienced a dramatic change in fortune in 1970, declaring pre-tax profits of over £10 million. Of the reported profits £9,014,376 came from subsidiaries, including £8,616,849 payable out of the profits of prior years. On 3rd February, 1971 FSNCo paid an interim dividend of £11,522,500 on its 1970 results to its parent company, the Peninsular and Oriental Steam Navigation Company (P&O) after a transfer from its reserves to its profit and loss account of £1,834,951 [6].

Until September 1969, FSNCo was a wholly owned subsidiary of the New Zealand Shipping Company (NZSCo) which was itself a wholly owned subsidiary of P&O. NZSCo was incorporated in New Zealand. Early in 1969, just prior to the containerisation of the European-Australian trade, the two companies (ie NZSCo and FSNCo), together with the Avenue Shipping Company owned a fleet of 30 cargo liners which were employed trading mainly between New Zealand/Australia and North-Western Europe, including the UK. Services were also maintained between East Coast North American ports and New Zealand/Australia. In this context, it should be noted that the non-shipowning subsidiaries of the NZS Group were mainly engaged in activities which supported the liner services provided by the three shipping companies in the Group. Such activities included shipping agency work, freight brokerage, shipping and forwarding, chartering and stevedoring.

From 1948 until 1957, FSNCo produced consolidated accounts. After 1957 no Group accounts were prepared as in the Directors' opinion "the expense involved [was] out of proportion to their value to members of the Company [5]". In 1957, the Company made an operating profit after charging depreciation of £53,617, whereas the Company and its subsidiaries made an operating profit on a similar basis of £397,848 [4].

In September 1969, the share capital of FSNCo was transferred from NZSCo to P&O and the share NZSCo held in the Avenue Shipping Company and in Birt Potter Westray were transferred to FSNCo. In May 1970, the issued stock and shares of NZSCo were transferred from P&O to FSNCo. Hence NZSCo temporarily became a wholly owned subsidiary of FSNCo and remained so for 17 months before its share capital was transferred back to P&O. But for this re-organisation of the NZS Group's structure, which appears to have been partly a consequence of the containerisation of the Australian trades, it is unlikely that a study of the accounts of FSNCo alone would have revealed anything unusual.

Although FSNCo enhanced profitability in 1970 is not conclusive proof of transfer pricing among members of the NZS Group, it is difficult to imagine what other explanation there could be for FSNCo's remarkable change in fortune, given its indifferent performance throughout the 1960s, especially as the principal shipping lines in the Group, namely NZSCo and FSNCo, were operated as a single unit. However, the only way in which it might be possible to establish conclusively whether transfer pricing was occurring or not would be by examining closely the accounts of all the companies belonging to the Group over a number of years before 1970. Such an investigation is, of course, beyond the scope of the present study. Nevertheless, there can be little doubt that P&O's interests in the Australasian trades in the 1960s were more profitable than would appear from FSNCo's accounts.

Table A2 Shares in Subsidiary Companies held by FSNCo 30th September 1970.

	Class of Shares held	Proportion of Total Issued Capital Held by FSNCo %	Held by Subsidiaries %
Incorporated in United Kingdom			
Avenue Shipping Co Ltd	Ordinary	100	
Bethell Gwyn & Co Ltd	"	100	
Birt Potter Westray Ltd	"	100	
Bertie Perkins & Co Ltd	"		100
Birt Potter & Hughes Ltd	Ordinary & Pref.		100
Dowie & Marwood Ltd	Ordinary		100
Dowie & Marwood (Air Services) Ltd	"		100
J B Westray & Co Ltd	"		100
Pallet Hire Ltd	"		100
Incorporated in Australia			
Birt & Co (Pty) Ltd	Ordinary		100
Birt Elder (Pty) Ltd	"		100
Darling Island Stevedoring & Lighterage Co Ltd	"	46	27
D.I.A.S. Pty Ltd	"	19	33
Incorporated in New Zealand			
The New Zealand Shipping Co Ltd	Ordinary & Pref.	100	
A E Fuller & Sons Ltd	Ordinary		100

Source: Reference [6].

APPENDIX B

This appendix contains tables which are components of the financial model in Section IV.

Table B1 Loan Repayment and Interest Schedules[1]

(£'000)

Year of Loan:	1966		1967		1968		1969	
Amount:	1658.40		1708.16		1759.36		1864.96	
Year	Repayments	Interest	Repayments	Interest	Repayments	Interest	Repayments	Interest
0	0	0	0	0	0	0	0	0
1	207.3	88.3617	213.52	91.0130	219.92	93.7410	233.12	108.4008
2	207.3	76.9602	213.52	79.2694	219.92	81.6454	233.12	94.4136
3	207.3	65.5587	213.52	67.5258	219.92	69.5498	233.12	80.4264
4	207.3	54.1572	213.52	55.7822	219.92	57.4542	233.12	66.4392
5	207.3	42.7557	213.52	44.0386	219.92	45.3586	233.12	52.4520
6	207.3	31.3542	213.52	32.2950	219.92	33.2630	233.12	38.4648
7	207.3	19.9527	213.52	20.5514	219.92	21.1674	233.12	24.4776
8	207.3	8.5512	213.52	8.8078	219.92	9.0718	233.12	10.4904
9	0	0	0	0	0	0	0	0

Year of Loan:	1970		1971		1972		1973	
Amount:	1976.80		2095.44		2284.00		2178.4	
Year	Repayments	Interest	Repayments	Interest	Repayments	Interest	Repayments	Interest
0	0	0	0	0	0	0	0	0
1	247.10	143.6270	261.93	152.2469	285.5	165.9470	311.1999	168.0480
2	247.10	125.0945	261.93	132.6022	285.5	144.5345	311.1999	143.1520
3	247.10	106.5620	261.93	112.9574	285.5	123.1220	311.1999	118.2560
4	247.10	88.0295	261.93	93.3127	285.5	101.7095	311.1999	93.3600
5	247.10	69.4970	261.93	73.6680	285.5	80.2970	311.1999	68.4640
6	247.10	50.9645	261.93	54.0232	285.5	58.8845	311.1999	43.5680
7	247.10	32.4320	261.93	34.3785	285.5	37.4720	311.1999	18.6720
8	247.10	13.8995	261.93	14.7338	285.5	16.0559	0	0
9	0	0	0	0	0	0	0	0

Continued

Table B1 Continued

(£'000)

Year of Loan:	1974		1975		1976		1977	
Amount:	2374.4		2706.9		3085.81		3517.78	
Year	Repayments	Interest	Repayments	Interest	Repayments	Interest	Repayments	Interest
0	0	0	0	0	0	0	0	0
1	339.1999	183.1680	386.6999	208.8180	440.8299	238.0487	502.5398	271.3721
2	339.1999	156.0320	386.6999	177.8820	440.8299	202.7822	502.5398	231.1688
3	339.1999	128.8960	386.6999	146.9460	440.8299	167.5157	502.5398	190.9655
4	339.1999	101.7600	386.6999	116.0100	440.8299	132.2492	502.5398	150.7622
5	339.1999	74.6240	386.6999	85.0740	440.8299	96.9827	502.5398	110.5589
6	339.1999	47.4880	386.6999	54.1380	440.8299	61.7162	502.5398	70.3556
7	339.1999	20.3520	386.6999	23.2020	440.8299	26.4497	502.5398	30.1523
8	0	0	0	0	0	0	0	0

Year of Loan:	1978		1979		1980		1981	
Amount:	4010.3		5224.96		5695.12		6207.68	
Year	Repayments	Interest	Repayments	Interest	Repayments	Interest	Repayments	Interest
0	0	0	0	0	0	0	0	0
1	572.8999	309.3665	614.7014	405.7030	670.0144	442.2096	730.3155	482.0083
2	572.8999	263.5344	614.7014	356.5267	670.0144	388.6082	730.3155	423.5829
3	572.8999	217.7023	614.7014	307.3504	670.0144	335.0069	730.3155	365.1575
4	572.8999	171.8702	614.7014	258.1747	670.0144	281.4061	730.3155	306.7326
5	572.8999	126.0381	614.7014	208.9984	670.0144	227.8048	730.3155	248.3072
6	572.8999	80.2060	614.7014	159.8221	670.0144	174.2035	730.3155	189.8818
7	572.8999	34.3739	614.7014	110.6464	670.0144	120.6027	730.3155	131.4569
8	0	0	614.7014	61.4701	670.0144	67.0014	730.3155	73.0315
9	0	0	307.3507	12.3538	335.0072	13.4000	365.1577	14.6061

Notes:

1. This table was derived from Tables 3 and 4.
2. Interest has been calculated on a semi-annual basis.

Table B2 Annual Interest Charges and Loan Payments (£'000)

Year	Interest Charges	Loan Repayments	Year	Interest Charges	Loan Repayments
1967	88.36	207.30	1975	680.69	2111.49
1968	167.97	420.82	1976	743.00	2284.67
1969	238.57	640.74	1977	815.43	2505.58
1970	311.73	873.86	1978	898.49	2775.00
1971	406.13	1120.96	1979	994.46	3100.80
1972	490.61	1382.89	1980	1159.74	3453.57
1973	569.16	1668.39	1981	1338.67	3526.88
1974	628.39	1979.59	1982	1545.31	3918.00

Source: Table B1.

Table B3 Tax Allowances Available[1] (£'000)

Year	Annual Tax Allowances	Annual Interest Charges	Accumulated Tax Allowances	Unused Tax Allowances
1965	4182.20	0	4182.20	1780.13
1966	2972.96	0	4753.09	2251.80
1967	2865.96	88.36	5206.12	2496.51
1968	2863.96	167.97	5528.44	2606.01
1969	3029.52	238.57	5874.10	2739.14
1970	3585.54	311.73	6636.41	3288.11
1971	3733.84	406.13	7428.08	3889.65
1972	3969.54	490.61	8349.80	4623.82
1973	4161.79	569.16	9354.77	5436.89
1974	4371.21	628.39	10436.49	6337.48
1975	4773.51	680.69	11791.68	7503.58
1976	5239.93	743.00	13486.51	8975.72
1977	5779.91	815.43	15571.06	10800.38
1978	6404.07	898.49	18102.94	13031.06
1979	7124.45	994.46	21149.97	15730.63
1980	7509.31	1159.74	24399.68	18548.44
1981	7941.09	1338.67	27882.20	21565.10
1982		1545.31		

Note:

1. This table was derived from Tables 3, 4, 5 and B2.

Table B4 Non-Equity Capital Financing Total Net Assets[1] (£'000)

Year	Loan Capital	Investment Grants	Year	Loan Capital	Investment Grants
1966	1,658.44	414.60	1974	9,605.37	1,964.44
1967	3,159.26	948.40	1975	10,200.78	1,964.44
1968	4,497.80	1,498.20	1976	11,001.92	1,964.44
1969	5,722.02	1,964.44	1977	12,014.12	1,964.44
1970	6,824.96	1,964.44	1978	13,249.43	1,964.44
1971	7,799.44	1,964.44	1979	15,373.59	1,964.44
1972	8,700.55	1,964.44	1980	17,615.14	1,964.44
1973	9,210.56	1,964.44	1981	20,295.94	1,964.44

Note:

1. Derived from Tables 3, 4 and B1.

Table B5 Replacement Value of Fleet[1] (£'000)

Year Ending 31 December	Replacement Cost of Fleet	Year Ending 31 December	Replacement Cost of Fleet
1950	11,445.0	1966	21,766.5
1951	12,475.1	1967	22,419.6
1952	13,597.5	1968	23,091.6
1953	14,821.8	1969	24,477.6
1954	15,267.0	1970	25,945.5
1955	15,724.8	1971	27,334.7
1956	16,196.3	1972	29,997.5
1957	16,682.4	1973	32,676.0
1958	17,182.2	1974	35,616.0
1959	17,697.8	1975	40,603.5
1960	18,228.0	1976	46,287.2
1961	18,775.1	1977	52,766.7
1962	19,337.9	1978	60,154.5
1963	19,918.5	1979	68,577.6
1964	20,511.8	1980	74,748.4
1965	21,132.3	1981	81,475.8

Note:

1. Derived from Table 3.

APPENDIX C

The terms of reference for the study were:

To produce a thinkpiece research paper concerning profitability of liner shipping. The thrust of the paper will be to grapple with the problem of explaining the persistent investment in the shipping industry despite recurring indications that return of investment is often low.

It is anticipated that the work would include the review and development of concepts related to shipping profitability and some description of the various practices, procedures, assumptions and so forth (for example, tax regimes, leverage, subsidies) that make investment in liner shipping attractive.

Although the paper will be heavily conceptual in nature it is to include empirical evidence to the extent possible.